

BBB Seminar (BMED382)



Thursday, January 15. 14:30 at the BBB, Auditorium 4

Oral health under attack: autoimmune mechanisms

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The oral cavity represents a critical interface between the body and the external environment, where physical barriers and immune mechanisms play a pivotal role in protecting against microbial invasion. The oral immune system not only defends against pathogens but also maintains immune homeostasis by balancing commensal and potentially harmful microorganisms.

However, this equilibrium is constantly challenged by intrinsic and extrinsic factors. Dysregulated immune responses, including autoimmunity, can lead to tissue damage within the oral cavity. One such manifestation is autoimmune amelogenesis imperfecta (AAI), a newly identified condition characterized by an autoimmune attack on ameloblasts, the cells responsible for enamel formation. This results in compromised enamel structure and hardness. AAI is associated with other autoimmune disorders, and here we explore its underlying mechanisms in two contexts: the rare monogenic autoimmune disorder Autoimmune Polyendocrine Syndrome Type I (APS-I) and the more common gluten-triggered condition, celiac disease.

Autoantibodies targeting components of the immune system, such as cytokines, are also observed in rare diseases. In APS-I, caused by mutations in the AIRE gene, patients exhibit lifelong susceptibility to severe *Candida* infections. This phenotype correlates with high-titer neutralizing autoantibodies against type I interferons and Th17-associated cytokines IL-17F and IL-22. These cytokines are essential for antifungal immunity, particularly against *Candida albicans*. When autoantibodies neutralize IL-17F and IL-22, the result is impaired clearance of *Candida*, a hallmark of APS-I.

Understanding autoimmune mechanisms that lead to secondary immunodeficiencies or predispose to secondary diseases is crucial for developing targeted therapeutic and preventive strategies.

Chairperson: Karl Johan Tronstad, Department of Biomedicine